SPECIAL RADIO FOUNDATION ISSUE

# AMATEUR RADIO

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# AMATEUR RADIO

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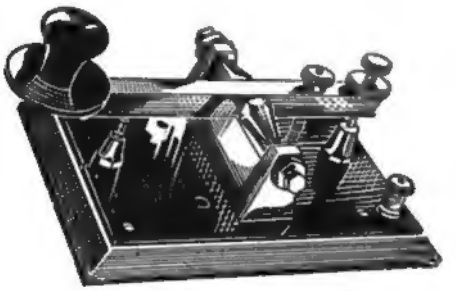

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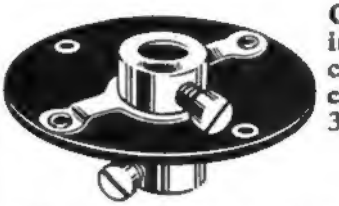

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# Editorial

The Institution of Radio Engineers of Australia has fixed 12th December, 1901, as the birthday of Radio—the marvel and mystery of the wonderful twentieth century. It was on that fateful day that the wizard Marconi bridged the Atlantic Ocean with the first wireless signal. It consisted of the Morse code signal for "S," and he received it at St. John's, Newfoundland, from Poldhu, Cornwall. That seemingly modest but actually history-making event crowned the untiring efforts of the pioneers, principally Marconi, Crooks, Lodge, Preece, and Jackson. Arrangements are already in hand by the Institution to have a world-wide broadcast of the letter "S" as an important item in their celebration programme on Radio Foundation Day. Also on that day, under the auspices of the Institution, a dinner will be held in Sydney, an example which it is hoped will be the forerunner of an annual event, not only in the capital cities of the Commonwealth but in overseas countries also.

As a matter of fact, Australia has figured largely and importantly in the development of radio during its first thirty-five years. It is a matter of history that a Russell-street police car was the first in the world to use wireless equipment. Recently in Manchester Professor W. C. Bragg, the well-known physicist, described the work of his grandfather, Sir Charles Todd, in the sending of the first wireless messages to Australia, and his own assistance in the project. Sir Charles was South Australia's first postal chief in 1901, and it was he to whom was entrusted the great work of constructing the overland telegraph from Adelaide to Darwin. He was already an old man when the first whisperings of Marconi's "toy" were heard around the world, but his imagination was deeply stirred. A wireless installation was fixed near Adelaide between two stations two miles apart, and signals were successfully broadcasted. It was then little thought that ere long sated millions of people would be regarding their radio as an ordinary every-day commonplace and necessity, and would not hesitate to complain about alleged insufficiencies and shortcomings of "regional programmes."

As far back as the year 1896, Mr. G. W. Selby, of Malvern, Victoria, was already exploiting the great subject, and he exchanged correspondence with Sir Oliver Lodge, who even at that time was evincing keen interest in the mystery. Also before the year 1900 the late Professor W. C. Kernot and Messrs. H. W. Jenvey and F. W. Chambers, of the Victorian Postal Department were experimenting in the same direction.

So it will be seen that Australian experimenters were well to the fore in the world's investigation of this, perhaps the greatest manifestation of man's genius. Gradually along the years experimentation gave way to practical achievement, and from that first modest spanning of the Atlantic to the triumphant establishment of regular communication around the globe, Australia has little need to be diffident. Amazingly has been justified, and, aye, transcended, Puck's boast: "I'll put a girdle 'round about the earth in forty minutes."

It would be ill if our own Wireless Institute of Australia did nothing to mark this great celebration, and its own not inconsiderable part in the development of the most marvellous discovery of a marvellous century. Hence, this Special issue, which has been made possible by the co-operation of our advertisers to whose notifications in these pages we commend the attention of all hams.

**A DEDICATION.**

**To the Immortals who reached the Heights and wrested from the Heart of Things the Great Mystery, and passed it on.—To the Thinkers who seized it and shaped it and harnessed it to the Service of Mankind.—To all Amateurs and others who followed the Gleam.—To the Great Business Concerns whose adaptations are reflected within these pages—**

**We dedicate this Issue.**

**December, 1936** **THE EDITOR.**

# Ultra High-Frequency Receivers

By Gil. Miles, VK3KQ

The U.H.F. Band is recognized to extend from 28-300MC, or, in other words, from 10 metres down to one metre. Below one metre they are known as micro-waves and, at the present time, will not be discussed. The reception of signals at these U.H.F. calls for special circuit arrangements, using ordinary valves and other components of suitable size.

The three types of receivers that are used are super-regenerative, super-heterodyne and super-infra, regenerator; the first listed being the most common, as well as the most popular.

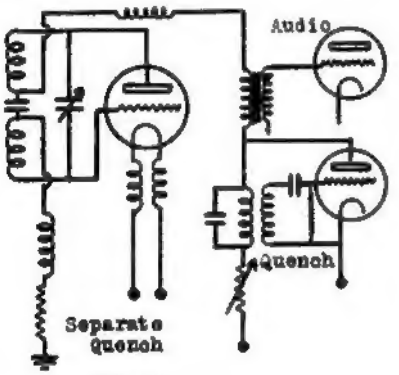


Fig 1.

Before discussing the merits or demerits of any of these forms of receivers, it might do well to look at our old friend the oscillating detector, and audio used on the lower frequencies. Most of us know what it is like trying to receive signals, especially telephony on, say, 14mcs with this type of receiver. Firstly, it is susceptible to changes in frequency, due to voltage variations of both plate and filament supply, changes of load and movement of parts. Secondly, any effort to control reaction results in serious detuning effect. Thirdly, the attenuation of the U.H.F. signals is so great that the amount of energy picked up is very small. However, suppose a detector is adjusted to be just on the verge of oscillation, a small signal applied to the grid will shock this unstable arrangement and oscillation will commence, which will build up to maximum amplitude governed by the circuit constants. This arrangement would not be capable of reproducing readable signals because oscillation, once started, would not cease at the conclusion of the signal since the effective resistance of the circuit is negative. It is well-known that if the resistance of the circuit could be varied periodically at a frequency lower than the incoming frequency between positive and negative values, then very large amplification could be produced without distortion.

Super-Regen. is the method of

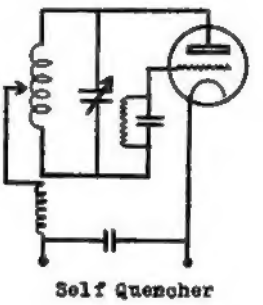


Fig 2.

carrying this feed-back past the point of oscillation without distortion, and can be brought about by using a separate quenching oscillator or making the detector carry out both functions. Thus we have:

(a) Separately quenched oscillators (fig. 1).

(b) Self-quenched oscillators (fig. 2).

The separately quenched detector is plate-modulated by the quench oscillator, in other words, its plate-voltage is varied at the periodicity of the quench frequency. The self-quenched detector functions as an ordinary oscillator in which the grid leak is too high to allow the electrons on the grid to leak off at a rate to give constant value of grid bias voltage. This causes a change in average bias and stops the oscillation, because the plate current is decreased and, therefore, the mutual conductance of the tube drops.

In the absence of a signal, the Super-regen. detector is in a complicated state of oscillation.

One of the outstanding characteristics when tuning a super-regenerative receiver for the first time is the apparent lack of selectivity. This is due to a phenomenon called "Multiple Resonance," and is caused by the presence of a number of component frequencies which are produced by the Quenching action. Fig.

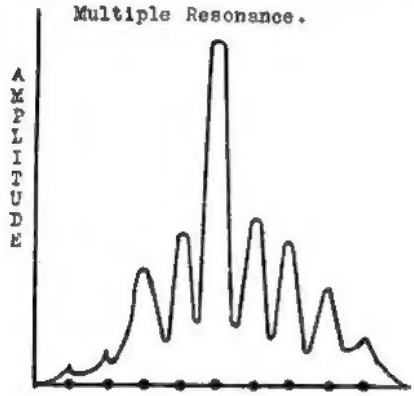


Fig 3.

3. Each separate resonant peak can be seen on a sensitive wavemeter and also heard on tuning to a weak carrier and listening on either side of the main peak.

The correct quenching frequency to use seems to be a debatable point, but Fig. 4 shows plainly the curve obtained by one reliable investigator. In this particular case the quench voltage was held constant and the quench frequency varied. From this curve it can readily be seen that the sensitivity is low for either too low or too high quench frequencies.

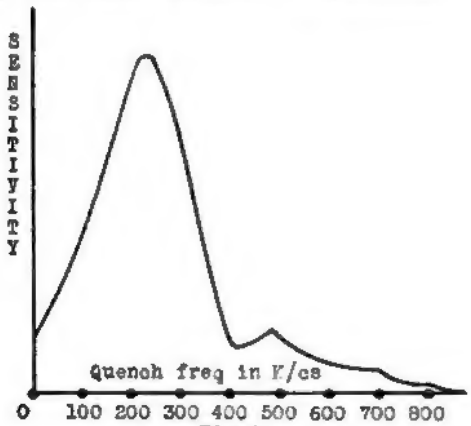


Fig 4.

In contrast with this data the English experimenters favor a quench frequency of about 20 Kc's.

As this type of receiver has its best operating condition in a state of mush, an important condition which is part of the quenching action is the loud characteristic background noise. This is also a function of extreme sensitivity.

Fig. 5 shows the suppression of this mush by the arrival of an incoming signal and the stronger this is the further the noise is suppressed. To obtain this data a galvo and crystal detector were connected across the headphones, and the curves show the galvo readings.

The incoming signal also increases the grid current, which means increased bias, and this, of course, decreases the plate current.

The variation of plate current is greatest when the receiver is operated at a plate voltage between 30-40 volts. For lower or higher plate voltages than this the sensitivity rapidly drops off.

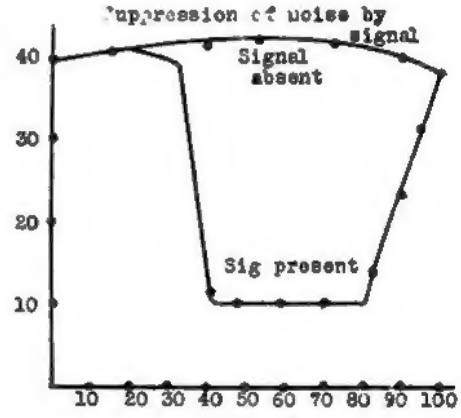


Fig 5

The correct plate voltage is such that the receiver is just brought to an oscillating state.

The receiver should not be considered satisfactory if it is necessary to raise the detector plate voltage above 40. Receivers using a higher plate voltage than this are not only inefficient, but are good radiators, and, as such, can cause considerable interference, which is not confined locally.

Fig. 6 shows a suitable RF stage, which will help in this direction.

The advantages of super-regenerative receivers are:—

1.—Extreme amplification.

2.—Uniform audio response.

3.—Good automatic volume control.

# "AR" News Session

¶ It is officially reported from North Melbourne that a fine modern factory has just been completed, and equipped with latest machinery, at 8-10, Scotia Street.

¶ The entire transformer and testing equipment plant of Messrs. Tilbury & Lewis has been taken over by a new firm whose personalities are well known to Hams. Manufacture will continue on the same lines as heretofore, under brand-new conditions, and a continuous policy of development.

¶ Specialties include Iron-core Devices used in broadcasting, Modulation Devices, Astatically-wound High-fidelity Audio Transformers (the Cores being fabricated and annealed throughout in the factory), etc.

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4.—Insensitive to ignition and other similar interference.

Disadvantages:—

1.—Non-selective.

2.—Strong characteristic noise.

3.—Re-radiation.

Now, the first two of these disadvantages can be considerably reduced by the addition of a radio-frequency stage, using special tubes, although some gain can be realised using standard tubes.

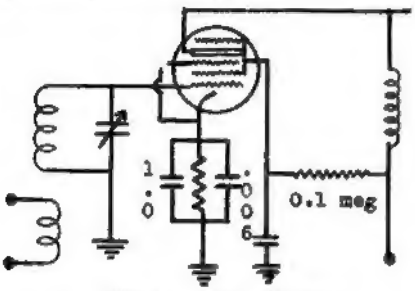



Fig 6. R.F. Stage

Advantages of a radio-freq. stage

1.—Signal to hiss improved for weak signals.

2.—Isolates the detector from antenna.

3.—Prevents radiation.

4.—Improves selectivity.

Before proceeding to the next type of receiver, just a few aids to better reception and less noise:—

1.—Use proper quench frequency.

2.—Control of quench voltage.

3.—Audio transformer by-pass.

4.—Tone control to eleminate the higher quench-frequency and some control on signal to noise.

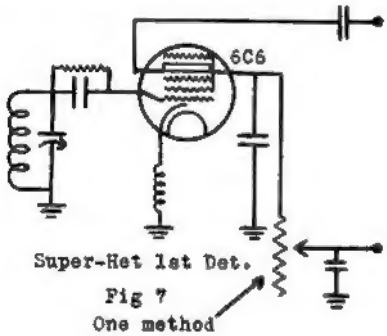



Fig 7
One method

5.—Electro static shield between audio-transformer primary and secondary.

6.—Reversal of primary to stop distortion.

**SUPER-HETERODYNE.**

A simple type of super consists of an auto-dyne detector and resistance couple I.F. and second detector. The first detector tunes exactly like an oscillating detector at lower frequencies.

This I.F. amplifier using proper values of resisters and condensers, tunes over a wide band from 10 to 100 KC, and because it is a poor audio-amplifier, its response to audio frequencies is nil. This also prevents the rectified audio-component in the first detector from being amplified through the receiver. The most sensitive condition is obtained when the detector is oscillating weakly, and this accounts for the excellent signal to noise ratio. Any other form of I.F. amplifier can be used providing it is adjusted to have a flat response. The one serious disadvantage of this type of receiver is its inability to exclude car-ignition and other similar disturbances.

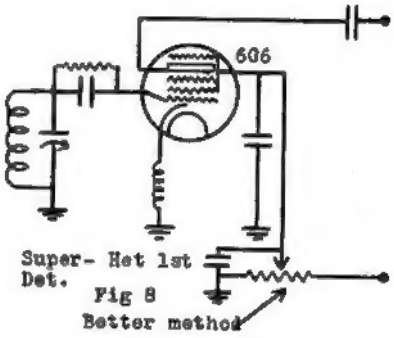



Fig 8
Better method

However, by the use of a Faraday screen between the antenna and grid coil, also earthing the centre of the antenna pick-up coil, this can be reduced somewhat. Care must be taken with the first detector circuit that too high a plate voltage or incorrect value of grid-condenser and leak are not used, otherwise this detector will super-regenerate. Failure of this detector to oscillate at all can be put down to cathode to filament bypass in the tube itself, and can be cured by the addition of filament chokes. The grouping of all earth return leads to a common point cannot be too strongly stressed. Fig. 7 shows a typical first Detector circuit using cathode regeneration. Fig. 8 is an improvement because of the more stable operation obtained by the screen-grid voltage control potentiometer as compared with the series resistor in Fig. 7.

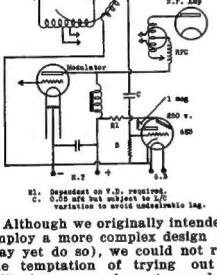
(The author desires to acknowledge having made use of certain copies of the P.I.R.E. for some data given here).

# A Simple "Magic Eye" Modulation Indicator

VK2BJ—K. Burnett.

Apropos Mr. Denys R. Ayres' promised investigation as to the possibilities of employing the 6E5 as a percentage modulation indicator, a similar thought has been back of the writer's mind ever since this tube was first released on the local market.

After awaiting further dope along these lines, and making tentative, but so far unsuccessful, enquiries from various distributors, we purchased one of these, and decided to get busy.




R1. Dependent on V.D. required.
C. 0.05 mfd but subject to L/C variation to avoid undesirable lag.

Although we originally intended to employ a more complex design (and may yet do so), we could not resist the temptation of trying out the following very elementary scheme first, and anyway, why use two 6E5's if one can be made to do.

The circuit hereunder is self-explanatory in the main, but a word concerning reference source, and adjustment may be in order.

The antenna coupler is so adjusted that the unmodulated carrier has negligible effect on the grid of the 6E5, but is sufficiently tight to allow of approximately —8V bias when 50% modulation is applied.

Under these conditions, we assume that the angular variation of the pattern between 90 and 0 degrees gives an approximate indication of percentage modulation, and that over-modulation will result in overlap. Naturally, a reference must be used when estimating the practical values indicated upon the scale surrounding the dome of our 6E5, and we consider that this may be obtained by co-relating reports received from a number of reliable stations. It will, of course, be essential in this case to effectively lock the coupling to the antenna circuit so as to prevent any mechanical variation in this respect.

Distortion, when known to be present, has also been distinguishable by a blurring of the edges of the fluorescent screen, but we are not prepared to suggest that the nature or degree of this can be estimated with this device.

To say the least of it, this gadget is distinctly intriguing in that it appears to the naked eye to give instantaneous response to carrier variations at audio frequency, and if our other assumptions are erroneous we shall certainly welcome constructive criticism from any source whatsoever.

## GENERAL MEETING.

**Victorian Division.**

A General Meeting will be held at the Institute Rooms on Tuesday, 15th December. At the conclusion of business, Mr. Murray Clyne, VK3HZ, will deliver a lecture on "APPLIED ALTERNATING CURRENT."

All members please attend, and an invitation is extended to non-members to be present.

R. A. C. ANDERSON,

# U.H.F. Section Field Day

By VK3DH

In spite of very uncertain weather conditions which prevailed on the Sunday morning of November 15th, thirteen stations took portable gear and hopefully retired to the country around VK3 with the optimistic hope of a fine day and a contact with a VK7.

Stations 3XM, 3TH, 3OJ, 3HF, 3WY, 3LC and 3WI (C.R. and D.H. operating) maintained a running fire of signals from the home locations, while 3KQ and 3VH made for Wallan; 3HZ, 3VX, Donna Buang (Ben Cairn); 3OF and 3OT, Dromana (Arthur's Seat); 3RS, 18 miles out of Shepparton; 3UH, Kinglake; 3JO and 3KE, Macedon; 3ML and 3UK, Angelsea, and 3HK, One Tree Hill.

Generally speaking, the results were not up to expectations, due, I think, wholly to the bad weather. 3KQ has a very good description of the weather around Wallan, but we'll have to leave that out.

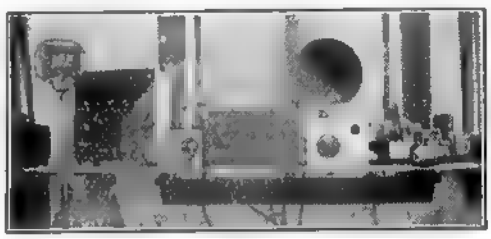
An arrangement was made with VK7AB some weeks before the field day to call and listen at definite times for any VK7 stations who could get on; 1000-1015 call VK7, 1015-1030 listen, and so on, every hour, with the remaining half-hour for locals.

In reply to our letters VK7RC had to report that he would not have the time to get on the air on the 15th, and VK7AB was to be the only starter. Up to date no report has arrived from 7AB about his activities of last Sunday, so there is still hope—he may have heard a VK3.

At a previous meeting of the U.H.F. Section it was decided that 3WI would be on the air to receive, relay or exchange news and general information on the doings as the day progressed, rather than, like the stations on location, take part in many experiments, etc.

Since the A.C. mains have not yet been made available at the W.I.A. rooms we were forced to use the alternator for power supply on this occasion. This, of course, meant that everything would have to be shut down before we could use our superhet receiver (batt. operated) on account of the Q.R.M. (electrical) from aforesaid alternator. The A.F. department, including microphone, three stage S. amplifier and modulator used all indirectly heated valves — result, a certain amount of time lost in change overs.

This A.F. gear was supplied by myself. The R.F. unit was produced by 3KQ and kindly loaned for the day, likewise the power department (transformer, rectifiers and filter) came from 3CR. On duty at



56 MC Gear at VK3WI

3WI, 3CR, O. Davies and yours truly. Receivers, Super Regen, loaned by 3CR and operated from A.C.—Superhetrodyne from 3DH. Antenna, half wave vrtical with ¼ wave, matching section on 40ft. mast atop W.I.A. rooms. Installed by O. Davies.

Stations received (3XY and 3AW, very steady), 3OJ, 3XM, 3TH, 3JO, 3HK, 3OF, 3OT, 3HZ and 3KQ, 3WI was reported a consistently good signal from most locations (we haven't heard from VK7 yet)—and most stations received at 3WI were more than R5—since the noise level there was bad and all below R5 were lost.

After 1415 the conditions improved very noticeably, and most of the stations heard came in between then and 1600. This improvement in reception conditions coincided with a temporary clearing of the weather—clouds cleared away, sun shining—

At 1500 we heard a tooting from the street below which, on investi-

gation, proved to be the 3KQ-3VH combination. They reported a record rainfall at Wallan in record time; they had to get out while they could, or they would have had to send out distress calls for the first time on 5 metres. I rather wish something like that had happened, and we would have at least made some history, since we couldn't contact Tasmania. The gang might have converged on Wallan "en masse" to drag KQ-VH out of the mud.

3TH reports a large number of stations contacted from Caulfield, which proves that by removing a number of our local stations about 50 miles out from home to good localities and operating on perhaps ½ power input good reliable communication is easily maintained — 3TH's bag:—3LC-R6, 3XM-R7, 3OJ-R6, 3HZ-R5, 3WI-R9, 3HK-R8, 3OF-3OT-R8, 3UH-R4, 3VH-R9, 3JO-R3, 3KQ-R7.

3ML at Angelsea commenced operations at 1215 and not until 1416, when they changed the horizontal array to a vertical dipole, did they have any result. At this time they heard 3OF. At 1435, 3OT was heard at Angelsea telling 3UH Kingslike that he heard 3ML in the morning R4-5 — so the horizontal array WAS working.

Then at 1541, 3ML contacted 3OF-R6, and at 1555, 3OT-R7-8. Actually 3ML and 3UK heard only 3OF and 3OT, both at Arthur's Seat, with two transmitters 4 watts and 15 watts. Later 3UH and 3KQ reported hearing 3ML, but no contact. These facts seem to point to the d.pole as being more efficient than the horizontal array.

3KQ originally set out for Pyalong, near Wallan, but after losing much valuable time, due to wrong direction, they finally set up there just in time to be drenched. However, just before the rain did arrive, 3KQ-3VH called 3RS with beam antenna N.E. and S.W., according to schedule. At 1148 called CQ, with beam N. and S.—N.D., and then they were washed out by the rainstorm. They intended to re-set up the station at Wallan, but the rain did not let up for long enough, so they were forced to retreat homewards.

From the usual address of 3KQ at 1540, contacted 3WI-R9, 3KQ's sig., R6-7; 1555, 3HZ-R5, R5; 1610, 3OT-R6, R6-7; 1620, 30F-R4, R6-7; 1628, 3HK-R4, R4.

Then 3JO at Macedon was heard at R4; 3TH at Caulfield, was heard at R7; 3ML, at Anglesea, was heard at R4.

A rather amusing experience was reported by 3KQ. Besides noticing very bad static interference, Gil. claims to be the first to hear a horse. When the laughter died down, the explanation was given that, as a horse trots along the track we have all noticed the sparks produced by contact between the "fore" and "aft" shoes: well, Gil. could hear regular clicks on his superhet. received, and, on looking around, noticed that the clicks corresponded with the action of the horse trotting along the track at the foot of the hill.

The next log is from 3XM, operated from Ormond (home). It will take up too much space to set out a detailed report of the log, so we shall have to be content with a general comment. Les was on and off from 1000 to 1433. Heard 3WI-R5, 3OJ-R5, 3LC-R5, 3TH-R5, 3HZ-R5, 3HK-R4, 3JO-R2-R6, 3OF-R5-7, 3OT-R7, carrier strong only.

Contacted:—3WI, 3OJ, 3TH, 3HZ, 3HK, 3VH, 3LC, 3OT.

GENERAL OBSERVATIONS: — Very great difference in signal strengths from all stations, improving during day. Very little QRM from receivers; 3OT extra strong carrier; modulation not so strong.

Then 3HZ located at Ben Cairn, near Donna Buang. Operated from 1100-1620. Contacted 3OJ, sig. in, R6, sig. out, R5; 3XM, R9, R4; 3TH, R9, R6; 3JO, R7, R7; 3HK, R8, R5; 3OT, R6, R9; 3UH, R8, R7; 3KQ, R6, R5; 3VH, R9, R8.

Operators, 3VX plus 3HZ plus Mr. Evans. Antenna, vertical, ½ wave, 2 elements plus reflectors. Transmitter, 45's P.P. and 4 Tube Superhet receiver.

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Note on another page the arresting notification from Mr. R. H. Cunningham (VK3ML). He has secured the valuable British agency of the famous Eddystone products, and can offer exceptionally good terms to hams and houses. We shall be pleased to publish some interesting particulars in the news columns of our January issue.

# Station Description

# VK7CK

Situated at Natone, about eight miles inland from Burnie, on the North-West coast of Tasmania, the call sign of VK7CK first came on the air early in September, 1932, shortly after the owner and operator, L. F. Clark, better known, perhaps, as "Poley," had acquired the necessary A. O. P. Certificate. Much of the credit of this must be given to "Lon" Jensen (VK7LJ), and the late Bruce Craw (VK7BC), who sowed the necessary "bug" and supplied much of the urge to qualify and obtain a license.

Much brass has been pounded since those days, and many friendships, near and distant have been made, while many call signs, together with their owners, have disappeared from the island State. Much water has passed over the old waterwheel that supplies 7CK with electric power in the meantime, and as the State hydro-electric scheme will in all probability be extended to Natone in the next few months, it was thought that a description of the power plant and station might be of interest, before it was reconstructed.

During the time that the necessary knowledge was being acquired to qualify for the operator's certificate, the matter of some means of power supply had to be seriously considered and after much planning and work, became an accomplished fact.

About 170 yards from the house is a fairly big creek, and the water from this was diverted along its bank for about 60 yards until it gained sufficient elevation to drop on to an overshot waterwheel with an extended main shaft, running in wide waterproof bearings, which were screwed down to half-ton wooden blocks set in concrete. Care had to be taken to see that sufficient fall was allowed for the exhausted water to run back into the creek bed from the wheel placement. The waterwheel is five feet in diameter, and two feet in width, and contains 17 compartments in its circumference.

The wheel shaft at its extended end passes through a wall into the building which houses the generator and its attendant driving gear. On this shaft and close to the main end bearing is a large sprocket wheel fitted by a heavy roller chain which passes to a smaller sprocket on one end of a countershaft, mounted some three feet away on the same block. Fastened to the other end of this countershaft is a large pulley which acts as a flywheel and from which an endless belt passes up at an angle

of 45 degrees to the generator on a platform above.

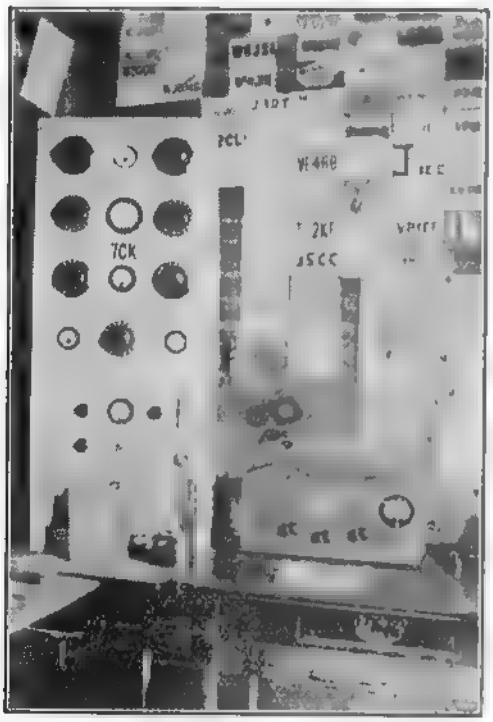
This platform is really at ground level and also carries a set of "Pickering" governors that control the amount of water falling on to the driving wheel, by means of an extended arm and rod, operating a butterfly valve in the water channel. The drive for these comes from a small 10-inch pulley, on the countershaft beside the flywheel and connects by a small vertical belt. These governors regulate the flow of water according to the load and maintain the speed and voltage to within about seven per cent. either way, under varying loads. The cor-

rect gearing ratios were only found after experiment, and are as follows:—

Normal speed of water-wheel and driving sprocket (42 teeth) up 7-1 . . . . . 20 r.p.m.

Speed of countershaft; driven sprocket (6 teeth) up 7-1 . . . . . 140 r.p.m.

Speed of generator; fly-wheel 30-inch., generator pulley 3-inch. up 10-1 . . . . . 1400 r.p.m.



The Gear at VK7CK

The generator is an A.S.E. dynamo 1 k.w. 240 v. D.C. and at 1400 r.p.m. maintains its voltage to about half load, but being shunt wound falls somewhat after that. The whole plant is equipped with reservoir ring oilers and only needs attention about every ten days. It runs continuously and the only expense since it was built has been the oil for the bearings, amounting to about ten shillings a year. The output is used for house lighting and power besides radio purposes, and is brought to the house by the usual type of overhead H.T. line. The only flaw in the whole scheme is the fact that during dry periods, the creek doesn't maintain sufficient volume of water to give satisfactory operation. All power for radio purposes is taken from the 240 v. mains, and passed through a 30 H. 300 m.a. choke, shunted by a bank of 8 mfd. condensers. Another 4 mfd. is also placed from each pole of the dynamo through a small audio choke to earth in the power house, and r.f. chokes wound of heavy gauge wire in the leads to the power lines. Lower voltages for receiver and other purposes are obtained from taps on a bleeder resistor of generous proportions. All filament supplies are from accumulators, which are charged by means of a 240/6 volt motor generator set, in the shack.

The first transmitter was a shunt fed Hartley followed soon afterwards by a M.O.P.A. utilising 2/E406s in the amplifier stage. Crystal control was later used, and with this rig much dx work was done on cw, and all VK and ZL districts were consistently worked on 'phone on the 3.5 and 7mc. bands. Verified reports of 'phone on 80 metres were received from U.S.A., Europe and Hawaii.

These last were surprising, as only grid modulation was used, and the input power at no time exceeded 15 watts.

The present transmitter is a three stage one, using link coupling throughout, and quickly changeable for the 3.5, 7 and 14mc. bands. A B403 tube is used in the oscillator stage, followed by a D404 as buffer driving a pair of E406s in parallel for the final amplifier. For 20 metres the last stage is used as a doubler, and appears to get out just as well as when used on the fundamental, and in this fashion all Continents have been successfully worked on an input power of 15 watts, and four of them on six watts. For 'phone work Telefunken modulation is used, comprising an A415 as modulator preceded by a two stage speech amplifier, a Philips microphone and a B.T.H. pick-up. This unit may be seen on the bottom shelf and panel of the transmitter.

All transmissions are checked on a shielded monitor, comprising an A425 tube in a Colpitts type circuit.

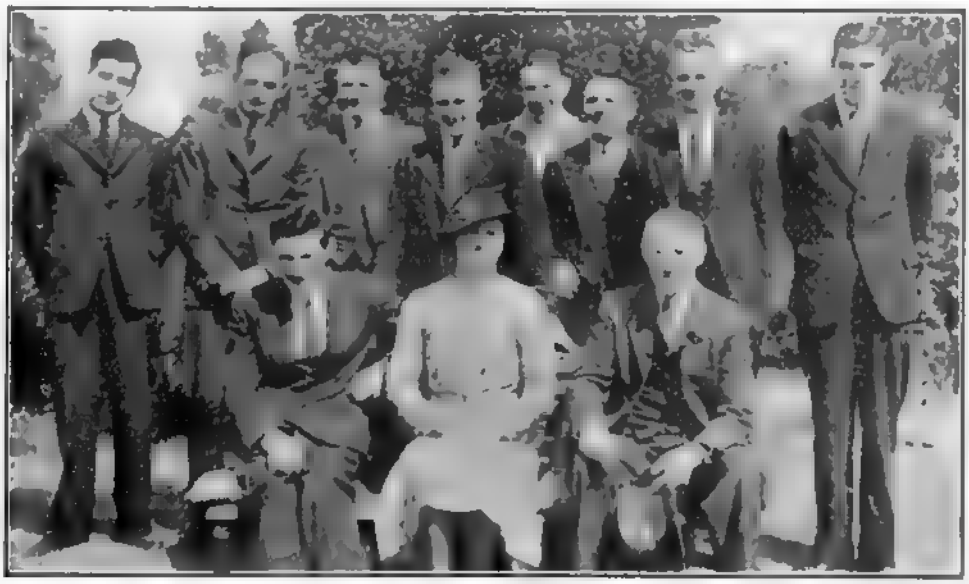
The receiver uses five tubes, the first two being A442s, r.f. amplifier and regenerative detector respectively, an A409 resistance coupled as first audio, followed by a pair of

(Continued on Page 32)

# Country Hams visit Kerang

The population of Kerang increased for one day on Sunday, November 15th, when six Hams, an XYL oprr., official photographer, etc., arrived in that fair city.

The parties were, from Rochester, 3EP and Mrs. Perkin (Auntie Jess) 3FF, and his brother Tom (who hasn't got a call sign yet), from Charlton, 3AI, 3HX, Mac (the official photographer), a new Ham, by name Fenton Burton, also another.



Sitting (left to right)—3HX, Mrs. Perkin, 3TL.

Standing—3FF, Tom Speer, 8KR, 3OR, Fred Skinner, 3AI, 3EP, Fenton Burton.

The Rochester gang arrived somewhere about 12 o'clock, and were joined by 3TL and 3KR for lunch, after which they proceeded to 3TL's location.

The Charlton Gang arrived at Lake Meran, from whence 3OR transported them via the new bus to Kerang, getting to 3TL's just as the rest of the gathering were about to view the works, CQ was sounded, by three cars, and everyone thought that there had been an accident.

Well, after being introduced all round, and after at least three of the gang had decided to take 3TL's mast home, Treb escorted us inside, but lo and behold, no rig could be seen. Treb opened a couple of cupboards folding the doors back, and there was the rig, and what a rig, a masterpiece of construction complete with 58 switches, 27 tubes, etc.

After signing a document (it might have been legal), and having a photo taken, we journeyed forth to the "King of DX" 3KR's shack. Ken has two Xmitters in operation, and he called CQ on 40 metres and worked 2ACD. On the wall of the shack were two WAC certificates, one CW and the other fone, the latter having arrived the previous day, as Ken put it up specially for the occasion. Hi!

We still had another shack to visit, that of 3OR, so the whole gang, 12 in all, made tracks for Lake Meran, where we were entertained to afternoon tea.

Murray then showed us his shack, and some shack, too, and after waiting a long time, 3CE and 3ZK were contacted on 80mx.

As time was then late, more photos were taken, and the gang began to wend their weary way homeward, after a very FB day indeed.

Let's hope gang, we have another like it very soon.

# The W. T. S. Crawford Trophy Competition for best Amatenr Telegraphist

## Open to N.S.W. Amateurs

The Senior Radio Inspector, W. T. S. Crawford, Esq., has always had the interests and well being of the Amateur and Experimental Transmitter at heart and it has always been a pleasure to him to help the "ham" in his experiments in every way possible. Many an amateur is only too willing to testify to this fact.

Mr. Crawford has always held a very high opinion of the operating abilities of the Australian Amateur and he considers that they hold their own with the rest of the Amateur World. In an endeavour to raise this standard still higher, he has very generously donated a trophy for competition among the New South Wales amateurs in order to find the best operator in our ranks.

This trophy will take the form of a silver cup, together with three replicas, and will be competed for over a period of three years. Each year's winner will hold the cup for a period of twelve months and will retain a replica for all time. The amateur winning the competition twice will win the trophy outright.

The Wireless Institute of Australia (New South Wales Division) has been delegated the honor of drawing up the rules, organising and conducting this competition. This does not mean that the competition is restricted to members of the Institute. Every amateur operator in N.S.W. is eligible with the exception of those mentioned in Rule 1.

The following are the rules and mode of competition:—

RULE 1.—The competition is open to every person in New South Wales holding an A.O.C.P. and a current experimental licence. Any amateur holding a commercial certificate, i.e., 1st or 2nd class "Ticket" is debarred from competing. Any amateur who is employed, or has been employed as professional telegraphist is also debarred. (This covers present and ex-:— P.O., Railway, R.N., R.A.N., R.A.F., R.A.A.F., Cable, Ship, Shore, Army and Police operators).

RULE 2. — Automatic keys and "Mills" of any description will not be permitted.

RULE 3.—For the preliminary heat, three judges will be selected from the ranks of the commercial and professional operators. The Senior Radio Inspector will be sole judge at the final. Judges' decisions in all cases to be final and binding.

RULE 4.—There will be one preliminary heat only, and that will take place during the week-ending 23rd January, 1937. The final will take place during the course of the 1937 Amateur and Short-wave Radio Exhibition on a date to be fixed.

RULE 5.—The radio clubs affiliated with the Institute and the Institute itself will conduct the preliminary heat in the city and suburbs. The Institute will conduct two sections of the preliminary heat (a) for members, (b) for non-members. Amateurs are asked to get in touch with the radio club in their district or the Institute itself. Any amateur who is not a member of the Institute or a radio club, should get in touch with the secretary of the W.I.A., at Box 1734 JJ, G.P.O., Sydney, who will make arrangements for his test.

The following country centres have been decided upon together with the controlling body. Newcastle Radio Club (Newcastle and Coal-

fields), Broken Hill (Broken Hill Radio Club), Wagga (Wagga Radio Club), Albury (W.I.A. Zone Officer, VK2IG), Grafton (W.I.A. Zone Officer, VK2NY). Should entries warrant it, other centres will be added.

RULE 6.—In the various sections of the preliminary heat the following procedure will be adopted to decide the finalists:—
Where there are ten or more entrants, 1st, 2nd and 3rd will qualify; where there are five or more entrants, 1st and 2nd only will qualify; where there are under five entrants 1st only will qualify.

RULE 7.—**The Operating and Receiving Test** will take the following form:—RECEIVE at the rate of 20 words per minute, two messages—each of one minute's duration—as per P.M.G's. Handbook. Press for a period of three minutes. Marks will be awarded for correctness, legibility and setting out.
TRANSMIT at the rate of 20 words per minute two messages—each of one minute's duration — and three minutes press. Marks to be awarded for formation, spacing, freedom from errors and breaks.

The Senior Radio Inspector's object in donating this trophy is an earnest and wholehearted desire to raise the standard of operating technique to a very high plane, and every "ham" in this State, who is worthy of the name, will ensure the success of this competition by sending in his entry form and making this test the event of the year.

With reference to this competition the point must be stressed that speed is not essential to success—that is, of course, speed exceeding 20 words per minute as previously set forth. The Institute realises that quite a number of amateurs would be interested in an endeavour to find the fastest operator among the "hams." To cater for these "hams," the Institute has decided to run a competition in conjunction with that for the Radio Inspector's trophy.

The trophy for this competition —to be known as The Wireless Institute of Australia Speed Contest— will take the form of a silver cup and three replicas, and will be competed for over a period of three years. Each year's winner will hold the cup for a period of one year and retain possession of a replica for all time. Competitor winning the cup twice will be the outright winner.

RULE 1.—Competition will be open to any amateur in New South Wales possessing an A.O.C.P. and current experimental licence.

RULE 2.—Entrants for Radio Inspector's trophy are eligible to compete for this trophy also.

RULE 3.—Country centres, as previously mentioned, will conduct tests and the rule for elegibility to qualify for final will be same as Rule 6 in R.I's. trophy.

RULE 4.—There will be one test only in the city, and that will be conducted by the Institute itself. This will cater for country finalists and all city and suburban entrants.

RULE 5.—Test will be to receive and transmit, press for three five-minute periods at the following speeds:— 20, 25 and 30 words per minute. Marks will be awarded as under Rule 7 R.I's. trophy.

RULE 6. — Automatic keys or "Mills" are ineligible for this competition also, but upon conclusion, any entrants desiring to create a record may use both.

RULE 7.—At least twenty-five entries must be received before this competition will take place.

RULE 8.—Judges in this competition will be the same as for R.I's. trophy, and their decision will be final and binding.

RULE 9. — This competition will take place immediately following the final for the R.I's. trophy. The country heat in the various areas will

(Continued on page 32)

## Notes from Federal Headquarters

**VK-ZL 80-Metre 'Phone Contest.**

The recent 80-metre telephony contest organised by the N.Z.A.R.T., Inc., in conjunction with the W.I.A. Federal Headquarters has concluded and the results are now to hand. The number of logs submitted was surprising, and it is regretted that through lack of space we are unable to publish the complete list of scores.

VK2NY, of Grafton, N.S.W., was the winner of the transmitting section with 420 points, and R. E. Webb, of Coramba, N.S.W., led the receiving section with 432 points. New Zealand results are not yet to hand at the time of writing. Leaders in the two sections are as follows:—

| | Call Sign | Points |
|---|---|---|
| Transmitting | VK2NY | 420 |
| | VK4CB | 416 |
| | VK3WE | 336 |
| | VK3ZK | 308 |
| | VK6RW | 288 |
| | VK4GG | 240 |
| | VK4HA | 224 |
| | VK3HX | 196 |
| (ex-ZL4GP) | VK2HB | 168 |
| | NK3KE | 126 |
| Receiving | R. E. Webb, Coramba, N.S.W. | 432 |
| | J. T. Edwards, Rye Park, N.S.W. .. .. | 408 |

**New Regulations.**

As there seems to be some confusion amongst amateurs in general regarding the interpretation of a "30-minute session," we publish an extract of a letter, from the Chief Inspector of Wireless, Melbourne, which should clear this matter up definitely.

Mr. Malone writes as follows:—

"Regarding the '30-minute session,' it is intended that 30 minutes should cover the whole period of a two-way contact. To allow transmission by one station for 30 minutes without a break, would contravene Regulation 114 under the Wireless Telegraphy Act, which provides, inter alia, that the call sign shall be signalled not less than once in every five minutes. The present arrangement does not prevent an experimenter from making a second contact on completion of the first."

From the above, it should be perfectly clear to everybody, as to what is meant.

**Federal Convention.**

Arrangements are well under way for the holding of the Convention in Sydney, at the end of January.

Details of the above will be published in the January issue of Amateur Radio.

## Federal and Victorian QSL Bureau

By VK3RJ, Federal 1sl. Manager.

I sincerely regret the omission of notes from the November issue. The notes were sent in on the usual date, but owing to a re-arrangement to enable Amateur Radio to appear on the first of each month, the notes unfortunately missed the edition.

Great doings at Crib Point! Dave Duff, VK3EO (late VK2EO), after a few months swotting for exams., exepcts to put to sea early in the New Year. Gordon Macleod, VK32Z, the other big noise down there, is now a proud father. Congrats. on the arrival of that junior, Gordon.

After weeks of endeavour, the writer managed to get Sunday, 8th, off duty to take part in the 56 MC field day, only to find the outing postponed to 15th inst. Understand the day was a success.

VK3 country hams should advise the QSL manager when they become members of the Victorian Division of the W.I.A.

Still wanted by this Bureau—the JRA of SX3A. Thanks to John Langley, of 2OW, for the info. about SX3Z.

On October 18th VK2LZ, in the VKZL international test, had 68 QSOS, working 18 countries on 28 MC. Some performance, Con.!

The new QRA of the R.E.F. is—Resau des Emetteurs Francais, 6 Square de la Dordogne, Paris, 17°.

H. O. Widmer, of Sao Paulo, Brazil, writes to advise that he is compiling a "Born on the same day" register. For a trifle, friend Widmer will supply a list of persons born on the same day as yourself. Looks like a new stamp collecting stunt. Particulars may be had on applicaton.

(Continued on page 19)

## Early Melbourne Radio

Our representative enjoyed a chat the other day with Mr. O. A. White, advertising manager of Veall's. Mr. White was with many others now occupying important positions in local radio circles associated with Homecrafts, the first radio house in Melbourne. The old principal, Mr. P. H. McElroy, is, we are glad to say, still going strong. He carried on business for years at the still existing establishment in Swanston street, making a reputation in the retailing of Meccano and mechanical gadgets generally, until radio came along, of which he was quick to take advantage. In those days Mr. White ran "Homecrafts Magazine," which was very popular, associated with him were S. C. Hamberg, now staff superintendent and a director of Veall's, R. D. Fabine, special representative for O. H. O'Brien, F. Watson, for some years with Hartley's, now with Precedent Radio, S. V. Hosken, to-day resident engineer at 3AR Melbourne, and later at Veall's, A. E. Newnham, now announcer at 2CO Sydney, who made history during the dramatic rescue at Albury of the Dutch plane. We would gladly welcome for publication any further recollections of the early days of radio.

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(Continued from Page 18)

Cards are on hand at the Bureau, 23 Landale Street, Box Hill, for the following Victorian stations: — AD, AP, AT, AX, BG, BK, CA, DD, DT, DZ, EL, ET, EW, EZ, EH, EQ, FM, FZ, GA, GH, GJ, GP, HB, HE, IL, JE, JZ, KA, KG, KO, KS, KT, LG, LP, LQ, LT, MX, NA, NB, NG, NT, OL, OI, OU, PG, QZ, RN, RZ, RV, SB, TB, TE, TG, TO, UD, UJ, UO, VF, FK, WB, WC, WM, WZ, XJ, XV, XR, ZB, ZU, ZW, Sebire Hibberd.

Cards for the following, unless claimed forthwith, will not see Xmas: —VK3BE, BL, BX, CW, HO, JW, JK, KM, LY, LS, LK, NR, OZ, OP, OX, PS, QO, QP, QX, RM, SP, TW, VL, WH, YF, YL, YW, ZO.

# Divisional Notes

**All copy must be in the Editor's hands not later than the 18th of the month preceding publication**

## N.S.W. Division

### SPORTS DAY

The N.S.W. Division will be holding a combined Sports Day at Wyong on Sunday, December 6. Tennis, golf or cricket, whichever is your selection, and you will have an opportunity of meeting many country "Hams." Write the secretary, W.I.A., Box 1734, J.J., for fuliest information.

### ULTRA HIGH FREQUENCY SECTION.

This section held its inaugural meeting on October 22, and was formed because of the very increased interest shown in this division on the ultra-highs.

The objects are briefly as follows: To cater for all members interested in 28 mc and higher.

To encourage the use of stabilised transmitters and receivers to eliminate the use of unstable gear.

The office-bearers elected were Mr. J. Moyle, Chairman, and M. Meyers, Secretary.

The November meeting was held on the 5th inst., and all members present, whether newcomers or old hands on the "ultra highs," went away with some very interesting dope as to what has been done here with limited power. In this respect, thanks must be given to Mr. Moore, our Federal President, for the excellent talk he gave, covering the activities of the Metropolitan Water Sewerage and Drainage Board with regard to reliable and useful communication on these wave lengths.

In future, the formal meeting is to take place on the first Thursday in each month at the Y.M.C.A. Buildings and a supplementary meeting is to be held in the various shacks at least once a month.

At the next meeting a talk on modern ultra high frequency gear with special reference to receivers is to be given by Mr. Don Knock, who, at the present time, is one of the most active members in the five metre band.

As regards the activities of members over here, practically every day comes the report that interstate signals have been heard on five metres, but owing to conditions the signals are audible for a few minutes only and no definite check can be obtained on the call signs.

A report which seems to have a good basis came from 2UV of Kensington, who reported hearing 4FL on fone about 10 p.m. and, on going further into the matter, it was ascertained that 2BJ, who is some distance away from 2UV, heard this signal at the same time, so now they're only waiting for a verification.

Fortunately the majority of members are showing a trend towards crystal control on five, which seems to be the ultimate choice in the long run.

No doubt this summer the band will be much cleaner, which is a good thing, for all those down there last year will never forget the qrm caused by transceivers and the like.

With the introduction of the new 6L6 type tube, great possibilities crop up and 2NO is making good use of one as an E.C. oscillator with the first section on 10 Mx and the plate on 5 Mx. This is coupled to

# Brilliant New Radiokes Components for 1937

**Incorporating many advanced features the latest Radiokes component releases provide features that are new to Australia and which will be of great interest to all who follow the latest trend of radio design.**

Radiokes engineers have consistently been "first with the latest" in tuning coil design, and in support of this policy, have released for 1937 a new type iron core tuning coil.

### BIC BROADCAST IRON CORE COILS.

Type BIC iron core coils are designed for use within the broadcast band: 1500 to 550 kilocycles, in conjunction with a good grade of gang condenser of 385 mmfd. capacity.

1. Under these conditions, and assuming there is no regenerative feed back in wiring and associated parts, sensitivity is practically flat over the entire broadcast band.

2. BIC coils are mounted in a small square can, 1 3-8 in. x 1 3-8 in. x 2 3-8 in. high. The unusually small coil dimensions given an attractive coil can ratio, which results in minimum loss.

3. Aerial coils are designed for an average outside aerial, 75 feet long and 25 feet to 30 feet high, or any aerial system with an approximate capacity of 300 mmfd. Although this aerial coil gives satisfactory transfer with practically any type of aerial system, special types are available for 75 mmfd. undercar antenna, or short indoor antenna, or 200 mmfd. sedan roof antenna.

4. Type BIC coils are recommended for use wherever high efficiency and small sizes are necessary. The design or these coils gives maximum selectivity and sensitivity with low background noise.

Radiokes BIC aerial, R.F. or oscillator coils, 10/6 each list.

### TWA-3 COIL BOXES.

Type TWA-3 coil assembly is of greatly improved type. Briefly, the unit has been built in three sections, the first section housing aerial coils, the second R.F. coils, and the third oscillator coils. The unique design and construction of the TWA-3 box includes the following features, and is designed on the latest overseas principles.

1. Complete and most effective brass shielding between each section, giving complete stability with high sensitivity and selectivity with a minimum of loss due to close coil shields.

2. Coils are mounted around the contacts of the switch, making very short leads from coils, with consequent low loss. Complete shielding between switch sections prevents R.F. feedback.

3. Broadcast coils are of the new iron core Litz wound type, which are remarkably efficient inspite of their small physical dimensions. The increased permeability provided by modern iron cores means:

(a) Lower self capacity, lower capacity losses, and lower R.F. resistance.

(b) Marked improvement in selectivity.

(c) Unusually high ratio of reactance to R.F. resistance ("Q" value).

(d) Unsually high transfer of energy in the aerial coil, without tightening coupling, resulting in lower noise level for equivalent sensitivity and selectivity.

4. The wave change switch is actually built into each section of the box. By this means leads are kept short. The switch contacts are silver-plated to provide long and noise free operation.

5. The A.B.C. by-pass condensers are located within the box, actually at the coil returns, and it would be hard to find a more satisfactory place for them.

6. The TWA-3 box covers an unusually wide frequency range in three bands. Lower short wave band covers 10 to 25 metres. Medium band 25 to 80 metres, and broadcast band 200 to 550 metres. Short wave coils are space wound with heavy gauge enamelled wire, and primaries are interwound for maximum coupling.

7. Aerial coil is designed for use with an outside aerial, approximately 75 feet long and 25 to 30 feet high, or for any aerial system showing 300 mmfd. approximate capacity. Althouhg designed for definite antenna capacitance, transfer is satisfactory with any type of aerial.

Radiokes TWA-3 Coil Assembly, £6/17/6 list.

Available from all good radio dealers. Wholesale Distributors in all main cities of Australia and New Zealand.

an 802 which drives 2-35T's in the final, a very good line up, too.

2HZ has a crystal rig down there, but at the moment is putting in what little time he has into building a two-tube autodyne receiver.

"WN is down there with a crystal, but has not been heard for some time.

As usual 2JU is the silent worker.

**LAKEMBA RADIO CLUB—VK2LR**
**(Affiliated with the W.I.A.)**

By 2DL.

It is desired to extend congratulations to three members of the above club in the persons of Mr. W. Picknell and Mr. B. Dimmock (2OW), both of whom have taken unto themselves a wife, also to Mr. K. Johnson (2NJ), who was recently presented with a junior op. Len Worrall (2XM) was recently transferred to Cairns, Queensland, his new call sign being 4XM. A very compact and efficient transmitter was constructed for him by 2QP and 2QX. The rig consisted of two stages C.C., using the 6P6 valve in the final.

2ABT at Yerrinbool spends most of his spare time listening for 5mx signals of the Lakemba gang, but so far has drawn a blank. However, the boys are working on improved transmitters of the M.O.P.A. class, also new type receivers. 2OD hopes to be using 6P6's in push-pull, with supressor grid modulation in the final.

2XD from Tamworth recently paid the club a visit, but reports that conditions in Tamworth are pretty "punk" as compared with his former Bankstown location; as regards Northern YL's, he reports nothing over T5.

The above club wishes everybody a Merry Xmas, and a cordial invitation is extended to visitors who may desire to attend the meetings at the Sunrise Hall, Canterbury Station, every second Tuesday.

2WJ and 2UV both doing good work and 2BJ and 2HL can be heard nearly every night with good signals.

Just an example of the interest shown by members is that of old-timer Roy Hart, 2HO, who is back on the air after several years, and is going to put in some good work on the ultra highs.

2VN has crystal rig under construction, 53's in the exciter with a 7 mc crystal followed by a 6L6 doubling to 5mx and a 6P6 amplifier. At the moment experimenting with a four tube super on 5, but so far, not so good!

Speaking of supers calls to mind 2LZ, who has one working excellently down there, 7 tube, I think. The fb signal he is putting out comes from push-pull 800's, from which almost as much output is obtained as from his 20 mx xmtr. Incidentally, Con is using a 132 feet flat top antenna for this band.

With regard to 10 mx, the most notable performance of late is once again that of 2LZ, who, on the 3rd week end of the VK2L test had no less than 28 contacts in 18 different European countries. Congratulations, Con om!

Conditions are rather patchy at present, occasionally Europeans are heard around 7 p.m., and when they are heard it is usually at good strength. VS6AH and the consistent J2IS are heard regularly about 6 p.m., while the W fones can be heard around 6 a.m. fading out about 9 and coming in again a little later. It is of interest that on the night 2LZ put up his remarkable performance the signals could be heard from 6 p.m. until almost midnight.

Dave, 2AE, worked a G recently, and is now in the happy position of being WAC on this band.

With only one or two exceptions, all N.S.W. stations operating on 28 mc are using crystals and those exceptions have highly efficient mopas, so there is still room for plenty of stations without qrm! What about it, boys?

Well that seems to be about the lot for this month, so all you interstate "ultra-high" enthusiasts, we will be very pleased to hear from you and several of our members are anxious to make skeds.

**NEWCASTLE RADIO CLUB**
**(Affiliated with W.I.A.)**
**2RF.**

Condx. have been only fair on all bands lately, 20 mx. having lost a little of its previous kick.

2ZW has his 10 buffer working now. The way his key-clicks are we hate to think what's going to

happen when the final is on the air. Stan is often heard chewing the rag with locals on 40 and 20.

2UF is QRT, building a new shack 16 x 9. Fb, Frank. The lads won't wait to be invited when it's finished. BZ has 20 countries, and is descending to 10 mx in search of bigger and better DX. Dave is using a bug

New Ham 2ADG expects to have his pp 45's perking any time now. I visited DX hound, 2XU (engineer at 2KA) while at the Mountains re-recently. Gilbert's old rig is the emergency BCL Xmitter now, so he has built up a line-up of 53-46-10-10 for 40 and 20 mx. With the aid of a 132ft. antenna 90ft. high he put an R8 sig. into K5 the day before I was there. Gilbert exploded the popular idea that the middle and west of the Blue Mountains is no good for DX. Better than his old Belmore QRA, so Gil says.

Using a home-made Reiss mike, 2ZC is often on the BC band. The quality is reported to be fb.

### NO. 5 ZONE NOTES—VK2IG

The ZL and VK DX Contest over now and less qrm hi!
Here OJ and QE flat out and worked some fb dx. IG also on spasmodically but troubled with rig.

QE remodelling and has mopa 45 and 10 going very fb. Sets out well and good HAF, FA and YU last Sunday, 8th. Very fb, Allan am.

OJ now on holidays, been in test and worked some nice countries, too.

VK collaborating with the dusky ones in the New Hebrides.

EU not heard much, is putting in 50 modulator for fone.

QD defunct.

3EG qso's em. hrd him say 73 to ZL, but 'twas the countries he had got in test! IG trouble with rig and filter. Now trying mopa, output not so good. Also has new Zepp 66ft. E. and W. and peaks around Sth. Africa. Qso'd all the VQ8's hi!

### NEWS FROM THE "BARRIER"

(VK2ZJ)

Well gang, nothing much to report this month, except that condx. have gone vy punk here on 20 mx. Practically no dx about at all other than an occasional PK, W, J or ZU etc., late at night. Now that summer is here QRN is getting pretty bad out here in the "bush" on 40. The chief item of interest this month is the fact that Eddie, 2HX, is at last W.A.C. Congrats. on landing that elusive S. American om.

2HX has been experimenting with antenna lately, but still maintains that the old Zepp will take a lot of beating.

2DQ, not heard lately. Believe he is rebuilding.

2ZJ, put up a new stick the other week, but rotten condx. too good for my 30 watts, hi!

2ACD, Ron still putting out vy nice fone on 40 and 20.

2ADC, Roger just back from holidays in VIA. Took a portable wid him and worked some VKS's.

2OF, Jack Francis, one of latest hams up here on the air wid xtal rig.

2AEH, Frank Atherton, another new arrival, also on 40 mx, working plenty of VK's.

## Victorian Division

### U.H.F. NOTES TO 16th NOV., 1936

VK3OF

Work during the past month mostly concerned the construction and preliminary tests of gear for use on the field day held on November 15th. Results reported fully in this issue.

Apart from this more serious experiments have been undertaken by 3KQ. He has given much thought to a means of increasing the r.f. output of his xmitter. This new scheme was far more successful than anticipated and resulted in an approximate increase of three during the initial tests. More shall be heard of this later.

At a crowded meeting held on Saturday, 7th November 3DM lectured about the various xmitters and receivers he has built and his observations proved instructive to the members present. 3SJ, of Northcote, a newcomer to 5mx is bringing his gear to a high state of efficiency. Over a period of three days his signal as observed at Brighton improved from R3 to R8. A new and effective antenna should make his sigs. R. max.

Also among the recent newcomers to the band may be listed 3LC and 3ZM.

3XM during the past month has only been off the 5mx band on eight days. His activity brought his month's total of 5mx qso's to 85. Fifty-two of these were with 3OT. Their regular schedule at 1900 each evening helped swell the total. 3OT during the same period, the four weeks preceding 16th November, had a total of 81 contacts.

3JO, with his total of 39 contacts, and 3OJ, his brother, are causing some confusion with the similarity of their calls.

3VH and 3HZ operate four or five nights a week. That is, when they are not playing soldiers.

3PW at Eltham, when on the air, still puts an R8 signal over to Brighton. At present his inactivity is due to night work. The same applies to Scottie, of 3KW, located at Geelong.

3UH and 3HF still find their opportunities limited, as they are both situated at the bottom of a valley.

3ZK of Swan Hill, is expected soon to be active on 5mx.

3ML made everyone present envious with his high efficiency radio accessories, at the U.H.F. meeting held on November 17th. During this meeting the field day was discussed fully, verbal reports being received from participants. It was also decided to extend co-operation to VK5 during their field-day to be held on December 6th, by holding a field day in VK3 on the same date. Most stations in VK3 shall go to former locations.

3HZ was selected as the U.H.F. representative to lecture at the W.I.A. general quarterly meeting to be held on December 15th. The subject will be "Applied Alternating Current."

Next field day, on December 6th, VK5 are directing their beams at VK3. Preliminary arrangements are that VK3 shall call VK5 for the first ten minutes of each hour, E.S.T., and shall then listen for VK5 during the next twenty minutes.

All country stations, especially those in between VIM and VIA are requested to co-operate. Any VK3 stations taking part are requested to mail a report to 3DH.

## 'Phone Section Notes

By J. R. Kling, VK3JB

The October meeting of this Section was held on Tuesday, 27th October at the Institute Rooms, and was well attended, 26 hams being present, and various 2nd operators and Messrs. Kerley, Lahiff and Davies, of the Allocations Committee. Shortly after the meeting started we had the pleasure of a visit from our esteemed Chairman, Mr. Doyle, 3CR, who has been ill in hospital for some time, and the Acting Chairman, Mr. Thompson, 3TH, gave us an opportunity to welcome him back in the usual manner. He was still not too hot after his illness, so Mr. Thompson continued in the chair, and Mr. Doyle took a place alongside of him to give a hand with the business.

It was with regret that we accepted Mr. Davies' resignation from the Allocations Committee owing to lack of time to handle the job, and Mr. Hanson was appointed to fill the vacancy. The Allocations Committee members now are Mr. Kerley, Mr. Lahiff, Mr. Anderson ((3PA) and Mr. Hanson.

For some time past there have been Official Observers appointed each month from amongst our own members to check up on the stations operating, just to see how our own views of the transmissions tallied with the Allocations Committee's Order of Merit, and it was very interesting to hear all the reports read out at the meetings from all those that took part each month. In lots of cases they varied widely from the Official Order of Merit, but no matter who was on the Allocations Committee we would always find we would come out in practically the same order of merit as we are now, and it has proved beyond doubt that the Allocations Committee has a very hard job and that it has always carried out its duties in a remarkable manner.

Mr. Kerley informed us that a new system of allocating points had been drawn up by the committee, and was in operation last month, and should be definitely better. He also read out details which he had compiled from his observations regarding faults which the stations had made during their transmis-

sions during the month and for which they had lost points.

This innovation is a very excellent idea, and it is hoped that this will become a regular feature at the meetings, as it tells us where we make mistakes and helps us to rectify them.

After the Order of Merit had been read out and the stations allocated to their various times and frequencies on the band for the next month the meeting closed.

It has been rumored that 3AM might be moving to a new QRA as the one at Caulfield is too far away from work and also a bit on the small side.

3FW has been ill in bed for a week, but will be well enough to be on the air when Sunday comes we hope.

3LM had trouble with a crystal that had two peaks, one on 214.2 metres and the other on about 240 metres, and unless the transmitter was very carefully tuned up it would hop from one wave to the other. 3OV will be off the air for good, so I am told by 3OY, who is running his sessions for him as well as his own.

3RI is experimenting with an Equaliser on the pickup side of the input to the speech amplifier, but it has not been decided yet whether it will go in or out for keeps.

3EL is using one of 3JB's own crystals for his frequency while 3JB is trying to get the pool slab to do its stuff a bit more as it is not too "HOT."

It was announced from 3CB that he would be off the air during the month of December, but we don't know whether it is to rebuild or to have a holiday.

3CR has a 150-175 metre and a 3.5 MC transmitter for sale complete. It looks as though we are going to lose him altogether this time.

3FL and 3EL are regular Week-Nighters lately, too.

3HF gets out well lately and has plenty of pep in his programmes. 3TM is a regular Saturday Nighter and goes well into the early hours of Sunday morning.

## SHORT WAVE GROUP NOTES

By O. E. Davies

Both the September and the October meetings of the Group were well attended. At the latter meeting it was resolved that the members of the Group be assigned to frequencies adjacent to the amateur bands and keep a watch on the commercial stations operating in the immediate vicinity. All members will keep Logs which will be forwarded to FHQ for use at the forthcoming Cairo Convention.

On October 12th the Group paid a very interesting visit to 3UZ, where the staff laid themselves out in fine style and gave everyone a very enjoyable evening's entertainment.

The projected visit to the T.S.M.V. "Kanimbla" has had to be postponed until the New Year. At the present time the crew and agents are much too busy with the Christmas shipping rush to spend time on us, but a promise of a visit early in the New Year has been definitely given.

The next meeting of the Group falls on 23rd December. Roll up and assist to lay down a definite progressive policy for the New Year.

The Council have decided to allocate the Gadsen Trophy in the near future. So, with this in mind, it is of major importance that the Group settle down to serious experiments.

The U.H.F. section held a field day on 15th October, at which our representatives gave a very creditable display. Many members who were unable to go out on location succeeded in logging the majority of mobile stations from their home shacks.

Any news of members who are unable to attend meetings would be welcomed by the secretary, who will pass same on to the Gang.

On November 8th the Group visited 3KZ. There we had the pleasure of witnessing the P. and A. Parade, and also privilege of literally pulling the Control room to bits. The Gang voted it a fine evening's outing.

**Are YOU a Member of the W.I.A.? If not; Why not?**

## 28 M.C. SECTION

(Conducted by VK3CP)

Due to having very little spare time and being off the air at present, 3JJ will be unable to compile these notes in the future. He would like to sincerely thank all those who have helped to make them interesting. The present writer would be pleased if the boys would send along any dope, regarding equipment, stations worked, etc. Now that the DX contest is over, we can all settle down and take it easy once more—hi! Apart from the dozens of W stations worked each Sunday morning during the contest, K5AY, XE1AY, TiTEA, VE5Bi, VE4PH, J2iS, J2LU, J2iN, J3FJ, all put in FB signals. In the late afternoon FB8AB and ZS1H were the only stations. From app. 6 p.m. till 11.30 p.m. the Europeans came through — G6WY, HAF8D and G2PL reaching r8 on peaks. The second Sunday night of the contest, VK3BQ had a busy time and worked over a dozen Europeans. Max uses an Eimac 5OT in the final and when his class B, 6L6 mod. is finished we should hear some nice DX phone reports. On the 18th October VK3YP gave us all a surprise by working W8CRA and W4BPP at app. midnight and many other W's till after 2 a.m. This is the first time W's have been worked at this time. Ingram has an 800 in the final. VK3MR and VK3CZ have each completed their WAC on 10, now that the Europeans are so plentiful. 3CZ has PP 800 in final; Arthur has been busy with University exams, but we should hear more from him soon. VK3XP has a T9X sig. and is on most evenings; he uses PP'46 in final and only wants South America for his WAC. Our old friend VK3BD is now 2GU; he has everything in going order in Canberra and with the extra space available has erected another beam. Both Beam ants. have several half wave sections phased and in line, horizontally erected and fed by quarter wave stubs with matched lines. The following list of Europeans have been contacted at 3YP, 3BQ and 3CP, and will give an idea of the number of stations on during the evenings:—G6NF, G6DH, G6LK, G6WY, G5IS, G5RI, G2YL, G2PL, G2GQ, G2TM, G2NH, OH7NI, OH3NP, OH3OI, OH7ND, OH7NF, F8VS, HB9AO, SM7UC, SM6WL, OK2OP, OK2RM, SM6UC, D4XQE, D4XJF, PAAZ, YL2BB, HAF8D. The most consistent European hr. at 3CP is G6DH, who has been worked 16 times during the last few weeks, as early as 5.30 p.m. and as late as 11.55 p.m. A peculiarity of the signals when getting through some nights from 10 p.m. till app. midnight is the heavy back wave and echo on most signals. At this time most stations are r8 and the band is full; this has to be heard to be appreciated. ON4AP was heard qso VK6SA at 10.45 p.m. our time. The only stations worked from India are VU2AU and VU2AM; the first often reaches r8 at 7 p.m. VK4EI is using a Zepp antenna and recently worked over a dozen Europeans in 3 hours. The 10th November was a night out of the box; OK2OP came through at 5.30 p.m. and the last YM4AA finished at 12.30 a.m. J2IN reported VK4AP, RST589X at 8.30 p.m.; 4AP has an 800 in final and used a Zepp with 3 half waves and quarter wave stub feed. 73! and may we hear more VK's on 10.

## MALLEE AND NORTHERN DISTRICT.

3ZK-3HX

Conditions in this part of the State are not too bad considering the extreme changes in weather conditions which are being experienced. 28mc band has not reached its peak yet, 14mc seems to be the DX band at the moment, spasmodic listening logged many countries, including XU, CX, VS, PK's galore, G, KA's, EI, H, and any amount of Yanks.

7mc conditions has been rather good, some DX coming through on that band also. Some doubt has been expressed by the fone gang as to the regulation in respect to the time limit of 30 minutes, but this, no doubt, will be cleared up. (See Federal Notes.—Ed.).

The 3.5mc band is usually nothing but QRN, but a few diehards still regularly use that band.

3CE.—Is rather inactive, but does spend some time at radio, mostly on 20 metres, where he worked a J. Roy, also let some ventilation into his second 40mx. Xtal.

3 WN.—Is still on 80mx, but believe Jack is very QRL.

3 HN.—Heard on CW with rather a rough note, but packing some punch.

3 HR.—Believe Charlie to be building a QRO rig.

3 PX.—On 7mc cw with rough note.

3 OR.—Active again after a few months spell, mostly on 80mx as yet, but has an 802 for final, to suppressor grid modulate on 20mx.

3 KR.—Is back on the job again with Ac, and is watching 28mc closely. Ken is WAC cw, Wac fone, and is only waiting for cards to apply for WAC 28mc.

3 TL.—Is also active again on AC, but is as yet on 80mx. Treb is going to concentrate on 14mc fone.

3 EP.—Is mostly on 80mx, but will probably migrate to higher frequencies soon, looking for some DX.

3 BG.—Is on 40mx cw, and seems to be getting his share of QSO's.

3 FF.—Also mostly on 40mx, sometimes heard on 80. Hasn't reported any DX since the Yank.

3 KI.—Has been heard on 40mx fone.

3 ZK.—Is mostly on 40mx, sometimes on 80, tried to get down to 20mx, but could not get his PA to draw anything respectable.

3 HX.—Is on 80 and 40 mx, using the Buffer as a P.a.bias modulated, but hopes to have his 6P6's in action very soon.

Our congratulations go to Tom Speer, of Corop, and Fenton Burton, of Charlton, who were successful at the recent examination, and who, no doubt, will be active very soon.

## South Australian Division

By VK5KL

### A YL OPERATOR IN VK5

Many readers were disappointed at the absence of these notes for November, but can assure it was not the writer's fault. The lecture on November 11th by Mr. O'Grady was excellent and seemed more like a heart-to-heart talk. This meeting was very well attended and the field day for December 6th was thoroughly discussed. Many at the meeting took down pages of notes on Mr. O'Grady's talk, "Application of Cathode Ray Tube to Transmitter Adjustment." All five-metre enthusiasts in this State are anxious for the VK3 field day to arrive, as an endeavor is being made to contact from Adelaide. VK5 has now come into line with the other States and congratulations are extended to Miss Giesler, of Murray Bridge, who was successful in the recent A.O.P.C. exam at her first attempt. Although conditions have not been of the best several South Americans are audible at very good strength most evenings on 14 mc, the best being OA4R on 14,265 kc, OA4AI, 14,020 kc, and HKIZ, all on fone, also LU8EN on cw. The South African stations are very busy and can easily be contacted from before midnight onwards. Ten metres has opened up earlier this season, and chaps really experimeting should try this band for some interesting dx work. 5CR still heard on 40 mx fone at night, with 6 State conferences.

5FM continues his sked with 3ML on this band every morning.

5BY-5DA are studying for first-class ticket, working dx on 14 mc in between.

## Tasmanian Division

By VK7JB

Owing to a misunderstanding by members of the date, the November meeting of this division was postponed until next month, and as there seems to be no business to chronicle this month I will go straight on with members' activities.

7YL.—Chasing dx in the early hours of the morn. Worked VS7, PK1, and W's on first night. Trying hard for W.A.C. Listen for ZU1L. Joy!

7CT.—Working on 20 mx with 8 watts to a M.O.P.A. and getting R8 from VK2.

7KV.—Concentrating on 10 mx W.A.C. Still wants Europe to complete it.

7CL.—Rebuilding into rack and panel and 6L6's as modulators. Has B. CL. worries of late (who hasn't?).

7DH.—Working plenty of VK's and a few W's now and then on 40 mx. Has the bug-key craze at present.

7JH.—Heard on 20 mx with a

nice T9 note. Building a super-gainer soon.

7PA.—Installing a velocity mike for 200 mx work.

7JB.—Still recuperating from dx contest; ran up about 40,000 points. Turning to rowing for relaxation?

Dx conditions for the VK/ZL contest were ideal for the first week-end, but flopped rather badly for the remainder. The last two week-ends were particularly bad, owing to severe QRN, which made 40 mx practically useless.

7AB and 7LZ were heard regularly during the contest and should have a handy score. Both made W.A.C. in contest period.

7BN.—A newcomer in the north seems to be working regularly judging by the inward cards.

7KR.—Heard on a B.C.L. interference broadcast last Sunday. ("Don't, Charlie, they might hear you!")

In conclusion, I would like to remind non-members of the W.I.A. (VK7) that inward cards will not be forwarded unless a stamped, addressed envelope is forwarded to the Bureau. Cards are on hand for 7TY, 7CD, 7NG and 7BB.

Attention is directed to the interesting notification in this issue from the Meltran Engineering Pty. Ltd., of Scotia Street, North Melbourne. Here Messrs. R. C. Peterson and — Lewis, late of Messrs. Tilbury and Lewis Pty. Ltd., are manufacturing, in a fine new factory, transformers and other gadgets dear to the hearts of hams. A descriptive article will appear in next issue.

(Continued from page 12)

B443s in push-pull driving a dynamic speaker, with a jack provided on the first audio stage for 'phones. Band spreading is accomplished by the split stator method.

The main antenna is a Zepp, 50 feet high, with a flat top of 64 feet 7 inches, with feeders 32 feet long. This aerial points nearly east and west. Another 133 feet Marconi type is used mostly for receiving.

Activities have been mostly confined to the 3.5, 7 and 14mc. bands, but during 1933 a certain amount of experimental work was done on five metres in conjunction with the late Bruce Craw, of VK7BC, who was situated about six miles away by air line, and a certain amount of success was achieved.

By the time this reaches print, no doubt "Poley" will be seriously studying a.c. power packs, rectifier circuits, etc., and it will certainly seem strange to have QRO available. The only regret will be, that there won't be room in the shack to hang the old waterwheel up as a memento.

(Continued on Page 17.)

take place immediately after trophy heat.

RULE 10. — Country competitors should send their entry forms to the various centres. City and suburban competitors should send their entries to the secretary, W.I.A. (N.S.W. division), Box 1734 JJ, G.P.O., Sydney.

All enquiries should be sent to the above address also.

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